

# HEALTH BULLETIN

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## Is There A Link Between Video Display Terminal Use And Miscarriage?

A study conducted by the National Institute for Occupational Safety and Health reported in 1991 that the rates of live births, miscarriages, and stillbirths among women who used video display terminals (VDTs) in their jobs were similar to those among women who did not use VDTs in their jobs (see Health Bulletin 91-2). Two recent studies addressed the same health concern (miscarriage) of pregnant women who work with VDTs and reported different conclusions.

The British Journal of Industrial Medicine (49:507-12, 1992) published a study entitled "Spontaneous Abortion and Work with Visual Display Units." This study, conducted in England, compared 150 working women who had a miscarriage confirmed by a doctor with 297 pregnant working women who had not miscarried. Information about VDT use was collected by personal interviews using the same questionnaire for both groups. Information about other personal characteristics related to miscarriage, such as smoking, alcohol use, age, previous miscarriages, social class, and educational level was also collected during the interview. All of the women in the study were employed at the time of interview and had the same job for at least the three previous months. In this study, the amount of time spent using a VDT at work was about the same for the women who had miscarriages and the still pregnant women. The authors concluded that their data showed no evidence that pregnant women who use VDTs at work were at increased risk of having miscarriages.

In November of 1992, the American Journal of Epidemiology (136:1041-51, 1992) published a study entitled "Magnetic Fields of Video Display Terminals and Spontaneous Abortion." This study compared VDT use during the first 3 months of pregnancy for two groups of women in Finland. One group included 191 working women who had a miscarriage confirmed by a doctor, and the comparison group included 394 working women who had a normal birth. To be included in the study, women who had worked for at least 60 days during the first 3 months of pregnancy were identified from Finland's medical registries covering the years 1975 to 1985. The comparison group was selected so that it was similar to the miscarriage group with respect to age and year of pregnancy. Information on the amount and type of VDT use was obtained from a questionnaire mailed to both groups of women. Information on other factors related to miscarriage, such as pregnancy history, use of birth control, smoking, and alcohol use was also collected. No actual measurements were made in the workplace;

however, specific magnetic field levels were measured in front of each type of VDT model reported to have been used by any of the women. The miscarriage group spent about the same amount of time using VDTs in their jobs as the comparison group. However, the miscarriage group was more likely than the comparison group to have used VDT models with higher levels of measured magnetic fields. The authors concluded that exposure to specific high level magnetic fields from VDT use in early pregnancy may be related to miscarriages, and that studies which measure actual work exposures to magnetic fields in the work setting are needed to confirm this finding.

*Epidemiologic Note:*

*In evaluating whether there is a cause and effect relationship between an exposure (or risk factor) and a disease, researchers carefully consider the following questions:*

*How strong is the relationship between the disease and the exposure? The larger the difference between the rate of disease in an exposed population compared to that in an unexposed population, the more likely the disease is caused by the exposure.*

*Was the relationship statistically significant? If there were more cases of the disease than would be expected due to chance alone, the relationship is more likely to be causal.*

*Does the rate of disease increase consistently with increasing level of exposure? If the relationship is a causal one, we might expect to see higher rates of disease among people who had higher levels of exposure or who were exposed for a longer time.*

*Did the exposure occur a sufficient amount of time before the disease developed to have been able to cause the disease? Some diseases, like certain forms of cancer, take many years to develop, and to cause the disease the exposure must occur many years earlier.*

*Do similar studies of different populations having the same exposure show similar results? If the same relationship is seen in many studies, then it is likely that the relationship is causal. If the results of studies are different, then it is difficult to make any interpretations regarding cause.*

*Are the results consistent with what we know about human biology and disease natural history? If the results are consistent, then it is more likely that the relationship is causal.*

*Finally, researchers consider the design and limitations of the study. Are there any weaknesses in the methodology that may influence the conclusions? Have other factors that may also be related to the disease of interest been considered? How accurate are the measurements of the exposure and of the occurrence of the disease?*

This Health Bulletin is one in a series of routine publications issued by the Office of Health to share data from health studies throughout the DOE complex. The authors' conclusions do not necessarily reflect those of the Department. For more information contact: Dr. Terry L. Thomas, Director, Health Coordination and Communication Division, Office of Epidemiology and Health Surveillance, U.S. Department of Energy, Washington, D.C. 20585; Telephone (301) 903-5328.